ABSTRACT

In 2005, we estimated escapement of sockeye salmon (*Oncorhynchus nerka*) in two systems with important subsistence fisheries for the village of Angoon. These estimates extended a series of annual estimates starting in 2001 for Kanalku Lake and 1996 for Sitkoh Lake. We used mark-recapture methods, visual surveys, and age, sex, and length sampling on the spawning grounds to estimate sockeye escapement and age composition in each lake. Estimated escapement in Kanalku Lake in 2005 was about 1,100 sockeye salmon, marking the first year since the study began in 2001 that escapement levels in Kanalku Lake have been above 1,000 fish for consecutive years. The 2001 brood year consisted of only 200–300 spawning adults; however, the offspring of the 2001 brood year, age-1.2 sockeye salmon, were the dominant age class in the 2005 escapement. The 2005 season was the final season under the voluntary subsistence closure agreement for Kanalku Lake. In Sitkoh Lake the estimated escapement of about 13,400 sockeye salmon was a substantial increase from the 2004 escapement. Sitkoh Lake escapements continue to fluctuate and appear to be following a five year cycle typical of many sockeye salmon populations. Age-1.3 fish were the dominant age class (67.8% of escapement) in 2005, whereas age-1.2 sockeye salmon were the dominant age class in 2004. In Sitkoh Lake, the dominant sockeye age class seems to alternate between 1.2 and 1.3. Kanalku Bay is still the preferred subsistence fishery for most Angoon residents and we expect higher harvest rates following the ending of the voluntary closure. Since Angoon residents prefer Kanalku over Sitkoh Bay for subsistence fishing, future monitoring of Kanalku Lake stocks is a priority, given the changes in management of this system and our lack of knowledge as to how fishers will respond to these changes.

Key words: sockeye salmon, *Oncorhynchus nerka*, subsistence, Kanalku Lake, Sitkoh Lake, escapement, mark-recapture